

WHAT IS CLAIMED IS:

1           1.     A method of self-aligning connections for a two section mast, which method  
2 comprises:

3                   transporting an elongated bottom mast section to a guide frame adjacent to a well site,  
4 said bottom mast section having a pair of front legs and a pair of rear legs;

5                   transporting an elongated top mast section to said well site so that said mast sections  
6 are aligned, said top mast section having a pair of front legs and a pair of rear legs;

7                   positioning said legs of said bottom mast section slightly below a level of said legs  
8 of said top mast section; and

9                   raising said bottom mast section in order to engage said top mast section while  
10 simultaneously aligning the mast sections together.

1           2.     A method of self-aligning connections as set forth in Claim 1 wherein said bottom  
2 mast section is raised by cylinders on mast stands.

1           3.     A method of self-aligning connections as set forth in Claim 2 wherein said cylinders  
2 are powered by a rig hydraulic system.

1           4.     A method of self-aligning connections as set forth in Claim 1 wherein said legs of  
2 said bottom mast section are positioned slightly below a level of said legs of said top mast section  
3 by lowering said bottom mast section before said raising step.

1           5.       A method of self-aligning connections as set forth in Claim 1 including the additional  
2       step of pinning said top mast section to said bottom mast section.

1           6.       A method of self-aligning connections as set forth in Claim 1 wherein said bottom  
2       mast section and said top mast section are each transported on a vehicle in a horizontal orientation  
3       prior to a vertical use orientation.

1           7.       A method of self-aligning connections as set forth in Claim 1 wherein said legs of said  
2       bottom mast section are positioned by cylinders on said mast stands.

1           8.       A method of self-aligning connections as set forth in Claim 1 wherein said pair of top  
2       mast front legs each include a pair of protruding circular plates which engage and align with said pair  
3       of bottom mast front legs which each include an alignment jaw with a pair of hooks.

1           9.       A method of self-aligning connections as set forth in Claim 1 wherein said pair of top  
2       mast rear legs each include a jaw with a shoulder which engage and align with said pair of bottom  
3       mast rear legs which each include a jaw with protruding semi-circular plates.

1           10.      A method of self-aligning connections as set forth in Claim 9 wherein each said  
2       shoulder includes a radial face to receive said circular plates.

1           11.     A method of self-aligning connections as set forth in Claim 1 wherein said steps are  
2 performed in reverse order to disassemble said two section mast.

1           12.     A two section mast with self-aligning connections, which mast comprises:  
2                 an elongated bottom mast section having a pair of front legs and a pair of rear legs;  
3                 an elongated top mast section having a pair of front legs and a pair of rear legs;  
4                 a self-aligning connection between said mast sections wherein said pair of top mast  
5 front legs each include a pair of protruding circular plates, each said pair of plates engage and align  
6 with a jaw with a pair of hooks extending from each said bottom mast front leg and wherein said pair  
7 of top mast rear legs each include a jaw with a shoulder, each said jaw engaging and aligning with  
8 a jaw with protruding semi-circular plates extending from each bottom mast rear leg.

1           13.     A two section mast as set forth in Claim 12 including mast stands having at least one  
2 hydraulic cylinder to move said bottom mast.

1           14.     A two section mast as set forth in Claim 12 including a pin passing through each said  
2 jaw of said bottom mast front legs and through each said pair of protruding circular plates of said  
3 top mast front legs.

1           15.     A two section mast as set forth in Claim 12 including a pin passing through each said  
2 jaw with a shoulder of said top mast rear legs and through each said jaw with protruding semi-  
3 circular plates of said bottom mast rear legs.